WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor device, comprising the steps of:

introducing a metallic element for promoting crystallization of a amorphous semiconductor film into the amorphous semiconductor film;

partially crystallizing the amorphous semiconductor film by heat treatment to form a polycrystalline semiconductor film in which a crystal region and amorphous regions are intermingled; and

performing laser annealing to the polycrystalline semiconductor film with a laser beam having a wave length from 360 to 650 nm.

2. A method of manufacturing a semiconductor device, comprising:

a first step of introducing a metallic element for promoting crystallization of an amorphous semiconductor film introducing into the amorphous semiconductor film;

a second step of partially crystallizing the amorphous semiconductor film by heat treatment to form a first polycrystalline semiconductor film; and

a third step of irradiating a laser beam with a wave length from 360 to 650 nm to the first polycrystalline semiconductor film to form a second polycrystalline semiconductor film,

wherein the first polycrystalline semiconductor film is crystallized in the range from 92 to 99% in a region which becomes an active layer of a TFT.

3. A method of manufacturing a semiconductor device, comprising:

a first step of introducing a metallic element for promoting crystallization of an amorphous semiconductor film introducing into the amorphous semiconductor film;

a second step of partially crystallizing the amorphous semiconductor film by heat treatment to form a first polycrystalline semiconductor film; and

a third step of irradiating a laser beam with a wave length from 360 to 650 nm to the first polycrystalline semiconductor film to form a second polycrystalline semiconductor film,

wherein, in the first polycrystalline semiconductor film, the total area of amorphous regions in a region which becomes an active layer of a TFT is set from 1 to 8% of an area of the region which becomes the active layer of the TFT.

4. A method of manufacturing a semiconductor device, comprising the steps of:

introducing a metallic element for promoting crystallization of an amorphous semiconductor film into the amorphous semiconductor film;

partially crystallizing the amorphous semiconductor film in accordance with heat treatment to form a first polycrystalline semiconductor film; and

irradiating a laser beam with a wave length from 360 to 650 nm to the first polycrystalline semiconductor film to form a second polycrystalline semiconductor film;

wherein an area of each of amorphous regions in the first polycrystalline semiconductor film is equal to or less than 10.0 μm^2, and

wherein an area of at least one of the amorphous regions is equal to or greater than 0.30 μm^2.

5. A method of manufacturing a semiconductor device according to claim 1, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

6. A method of manufacturing a semiconductor device according to claim 2, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

7. A method of manufacturing a semiconductor device according to claim 3, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

8. A method of manufacturing a semiconductor device according to claim 4, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

9. A method of manufacturing a semiconductor device according to claim 1, wherein the laser beam is one kind selected from the group consisting of a second harmonic of a YAG laser, a second harmonic of a glass laser, an Ar laser, a second harmonic of a YLF laser, and a second harmonic of a YVO_4 laser.

10. A method of manufacturing a semiconductor device according to claim 2, wherein the laser beam is one kind selected from the group consisting of a second harmonic of a YAG laser, a second harmonic of a glass laser, an Ar laser, a second harmonic of a YLF laser, and a second harmonic of a YVO_4 laser.

11. A method of manufacturing a semiconductor device according to claim 3, wherein

the laser beam is one kind selected from the group consisting of a second harmonic of a YAG laser, a second harmonic of a glass laser, an Ar laser, a second harmonic of a YLF laser, and a second harmonic of a YVO_4 laser.

12. A method of manufacturing a semiconductor device according to claim 4, wherein the laser beam is one kind selected from the group consisting of a second harmonic of a YAG laser, a second harmonic of a glass laser, an Ar laser, a second harmonic of a YLF laser, and a second harmonic of a YVO_4 laser.

13. A method of manufacturing a semiconductor device according to claim 1, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

14. A method of manufacturing a semiconductor device according to claim 2, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

15. A method of manufacturing a semiconductor device according to claim 3, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

16. A method of manufacturing a semiconductor device according to claim 4, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

17. A method of manufacturing a semiconductor device according to claim 1, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable

information terminal.

18. A method of manufacturing a semiconductor device according to claim 2, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.

19. A method of manufacturing a semiconductor device according to claim 3, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.

20. A method of manufacturing a semiconductor device according to claim 4, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.

21. A method of manufacturing a semiconductor device according to claim 1, wherein the laser beam has a wave length from 400 to 600 nm.

22. A method of manufacturing a semiconductor device according to claim 2, wherein the laser beam has a wave length from 400 to 600 nm.

23. A method of manufacturing a semiconductor device according to claim 3, wherein the laser beam has a wave length from 400 to 600 nm.

24. A method of manufacturing a semiconductor device according to claim 4, wherein the laser beam has a wave length from 400 to 600 nm.

25. A method of manufacturing a semiconductor device according to claim 2, wherein the first polycrystalline semiconductor film is crystallized in the range from 92 to 99% in a region which becomes an active layer of a TFT.

26. A method of manufacturing a semiconductor device according to claim 3, wherein, in the first polycrystalline semiconductor film, the total area of amorphous regions in a region which becomes an active layer of a TFT is set from 1 to 6% of an area of the region which becomes the active layer of the TFT.

27. A method of manufacturing a semiconductor device according to claim 2, wherein the second polycrystalline semiconductor film formed is crystallized in equal to or greater than 99% of the region which becomes the active layer of the TFT.

28. A method of manufacturing a semiconductor device according to claim 3, wherein, in the second polycrystalline semiconductor film, the total area of amorphous regions in the region which becomes the active layer of the TFT is set equal to or less than 1% of the area of the region which becomes the active layer of the TFT.

29. A semiconductor device comprising a semiconductor film, wherein:

a metallic element for promoting crystallization of an amorphous

semiconductor film is introduced into the amorphous semiconductor film;

a first polycrystalline semiconductor film is formed by heat treatment, in which 92 to 99% of a region which becomes an active layer of a TFT is crystallized; and

a second polycrystalline semiconductor film formed by irradiating a laser beam with a wave length from 360 to 650 nm to the first polycrystalline semiconductor film is used as the active layer of the TFT.

30. A semiconductor device comprising a semiconductor film, wherein:

a metallic element for promoting crystallization of an amorphous semiconductor film is introduced into the amorphous semiconductor film;

a first polycrystalline semiconductor film is formed by heat treatment, in which a total area of amorphous regions in a region which becomes an active layer of a TFT is set from 1 to 8% of an area of the region which becomes the active layer of the TFT; and

a second polycrystalline semiconductor film formed by irradiating a laser beam with a wave length from 360 to 650 nm to the first polycrystalline semiconductor film is used as the active layer of the TFT.

31. A semiconductor device comprising a semiconductor film, wherein:

a metallic element for promoting crystallization of an amorphous semiconductor film is introduced into the amorphous semiconductor film;

a first polycrystalline semiconductor film is formed by heat treatment, in which a area of each of the amorphous regions in a region which becomes an active layer of a TFT is equal to or less than 10.0 μm^2 and an area of at least one amorphous region is equal to or greater than 0.30 μm^2; and

a second polycrystalline semiconductor film formed by irradiating a laser beam with a wave length from 360 to 650 nm to the first polycrystalline semiconductor film is used as the active layer of the TFT.

32. A semiconductor device comprising: a semiconductor film; a gate insulating film; and a gate electrode formed on an insulating surface,

wherein the semiconductor film is a second polycrystalline semiconductor film formed by a method comprising the steps of:

introducing a metallic element for promoting crystallization of an amorphous semiconductor film into the amorphous semiconductor film;

forming a first polycrystalline semiconductor film by heat treatment, in which 92 to 99% of a region which becomes an active layer of a TFT is crystallized; and

irradiating a laser beam with a wave length from 360 to 650 nm to the first polycrystalline semiconductor film to form the second polycrystalline semiconductor film.

33. A semiconductor device comprising: a semiconductor film; a gate insulating film; and a gate electrode formed on an insulating surface,

wherein the semiconductor film is a second polycrystalline semiconductor film formed by a method comprising the steps of:

introducing a metallic element for promoting crystallization of an amorphous semiconductor film into the amorphous semiconductor film;

forming a first polycrystalline semiconductor film by heat treatment, in which a total area of amorphous regions in a region which becomes an active layer of a TFT

is set from 1 to 8% of a area of the region which becomes the active layer of the TFT; and

irradiating a laser beam with a wave length from 360 to 650 nm to the first polycrystalline semiconductor film to form the second polycrystalline semiconductor film.

34. A semiconductor device comprising: a semiconductor film; a gate insulating film; and a gate electrode formed on an insulating surface,

wherein the semiconductor film is a second polycrystalline semiconductor film, which is obtained by introducing a metallic element for promoting crystallization of an amorphous semiconductor film into the amorphous semiconductor film, and irradiating a laser beam to a first polycrystalline semiconductor film which is obtained by partially crystallizing with heat treatment;

wherein an area of each of the amorphous regions in a region of the first polycrystalline semiconductor film is equal to or less than 10.0 μm^2;

wherein an area of at least one of the amorphous regions has is equal to or greater than 0.30 μm^2; and

wherein the wave length of the laser beam is from 360 to 650 nm.

35. A semiconductor device according to any of claim 29, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

36. A semiconductor device according to any of claim 30, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd,

Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

37. A semiconductor device according to any of claim 31, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

38. A semiconductor device according to any of claim 32, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

39. A semiconductor device according to any of claim 33, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

40. A semiconductor device according to any of claim 34, wherein the metallic element is one kind or plural kinds of elements selected from the group consisting of Ni, Pd, Pt, Cu, Ag, Au, Al, In, Sn, Pb, P, As and Sb.

41. A semiconductor device according to 29, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

42. A semiconductor device according to 30, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

43. A semiconductor device according to 31, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

44. A semiconductor device according to 32, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

45. A semiconductor device according to 33, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

46. A semiconductor device according to 34, wherein the semiconductor device is a liquid crystal display device or a light-emitting device.

47. A semiconductor device according to 29, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.

48. A semiconductor device according to 30, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.

49. A semiconductor device according to 31, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.

50. A semiconductor device according to 32, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.

51. A semiconductor device according to 33, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.

52. A semiconductor device according to 32, wherein the semiconductor device is a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal.